بسم الله الرحمن الرحيم

In The Name Of ALLAH

The Most Gracious, The Most Merciful

Armed Forces College of Medicine

AFCM

Drugs used to treat allergic rhinitis

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INTENDED LEARNING OBJECTIVES (ILO)

By the end of this lecture the student will be able to:

1. Classify the drugs used in treatment of allergic rhinitis
2. Explain the mechanism of action, clinical uses and the most important adverse effects of drugs used in treatment of allergic rhinitis

Allergic Rhinitis

- **Allergic Rhinitis** is characterized by sneezing, itchy nose/eyes, watery rhinorrhea, nasal congestion, and sometimes, a nonproductive cough.

Allergic Rhinitis

- An attack may be precipitated by inhalation of an allergen (such as dust, pollen, or animal dander).

- The foreign material interacts with mast cells coated with IgE generated in response to a previous allergen exposure.

- The mast cells release mediators, such as histamine, leukotrienes, and chemotactic factors that promote mucosal thickening from edema and cellular infiltration.

Drugs used in allergic rhinitis

First line drugs

Antihistamines and/or intranas corticosteroids.

are preferred therapies for allergic rhinitis.

Others:

- **α- adrenergic agonists**
- **Intranasal cromolyn (for prophylaxis)**
- **LT antagonists (for prophylaxis)**

Antihistamines (H1-receptor blockers)

- Useful for the management of symptoms of allergic rhinitis caused by histamine release (sneezing, watery rhinorrhea, itchy eyes/nose).

- They are more effective for prevention of symptoms, rather than treatment once symptoms have begun.

- Ophthalmic and nasal antihistamine drops

- First-generation antihistamines, such as diphenhydramine and chlorpheniramine, are usually not preferred due to adverse effects, such as sedation, performance impairment, and other anticholinergic effects

- The second- generation antihistamines (loratadine) are

Steroids for allergic rhinitis

- **Beclomethasone, fluticasone.**
- **Nasal spray**
- **To avoid systemic absorption, patients should be instructed not to inhale deeply**

Steroids for allergic rhinitis

- **Side effects:**
  1) Nasal irritation,
  2) Sore throat,
  3) Nosebleed
  4) **Rarely** candidiasis

Which of the following drugs is considered first line in the treatment of allergic rhinitis ?

a) Salmeterol

b) Beclomethasone

c) Phenylephrine

d) Cromolyn

e) Montelukast

α-Adrenergic agonists

- **Short-acting** α-adrenergic agonists "**nasal decongestants**" such as **phenylephrine**, constrict dilated arterioles in the nasal mucosa and reduce airway resistance.

- **Aerosol** **rapid onset** of action & **few systemic effects**.

- **α-adrenergic agonist intranasal formulations:**
  - **Not used longer than 3 days due to :**

    the risk of rebound nasal congestion

    (i.e have no place in the long-term treatment)

- Administration of **Oral α-adrenergic**

Which of the following drugs could not be used more than 3 days in the treatment of allergic rhinitis attack ?

a) Salmeterol

b) Phenylephrine

c) Beclomethasone

d) Cromolyn

e) Montelukast

Key points summary

- **Antihistamines:**
  - 1st generation: NOT preferred due to adverse effects
  - 2nd generation (e.g Loratadine): better tolerated.
  - Dosage forms used: Ophthalmic and nasal antihistamine drops

- **Corticosteroids:**
  - Beclomethasone, fluticasone.
  - Nasal spray

- **α-Adrenergic agonists:** NOT more than 3 days → rebound nasal congestion
  - "nasal decongestants" such as phenylephrine [no place in the long-term treatment]
  - Aerosol → rapid onset of action & few systemic effects.
  - constrict dilated arterioles in the nasal mucosa and reduce airway resistance.
  - Administration of Oral α-adrenergic agonist formulations:
    → results in a longer duration of action but also increased systemic side effects.

SUGGESTED TEXTBOOKS

1. Whalen, K., Finkel, R., & Panavelil, T. A. (2018) Lippincott's Illustrated Reviews: Pharmacology (7th edition.). Philadelphia: Wolters Kluwer

2. Katzung BG, Trevor AJ. (2018). Basic & Clinical Pharmacology (14th edition) New York: McGraw-Hill Medical.


Thank You